

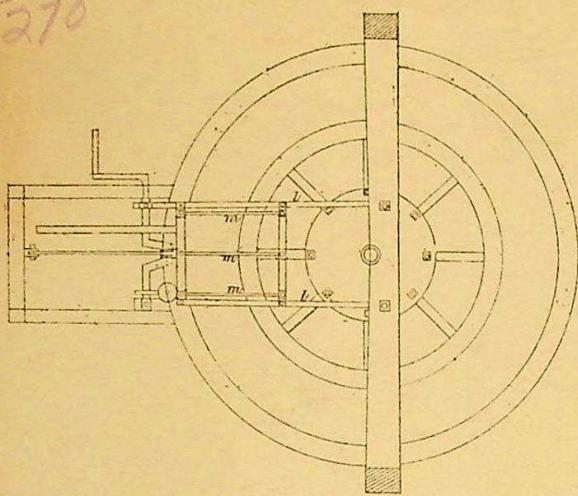
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BRITISH 2488 OF 1801

Birn's Spec.

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FIG. XI.



AD 1901 APRIL 23. NO 2130.
BIRN'S SPECIFICATION.

FIG. X.

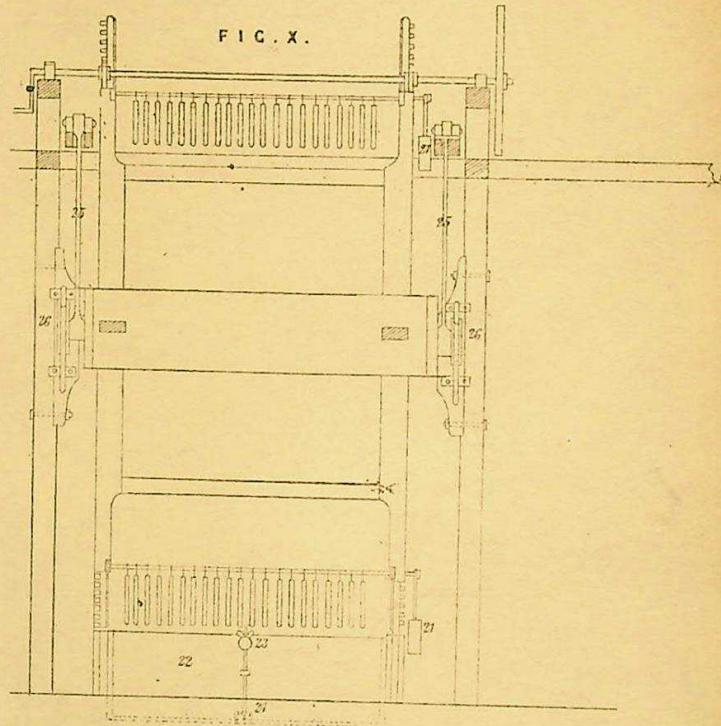


FIG. I.

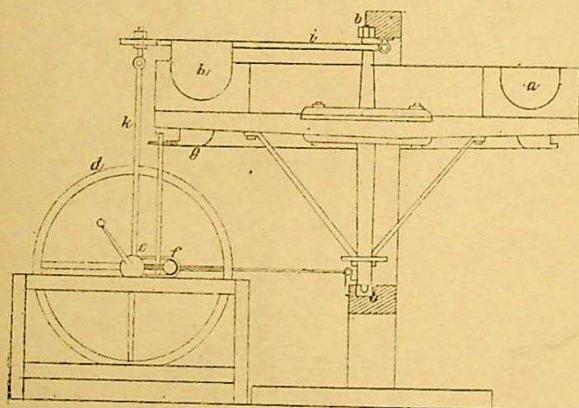


FIG. VIII.

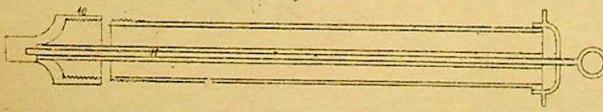


FIG. VII.

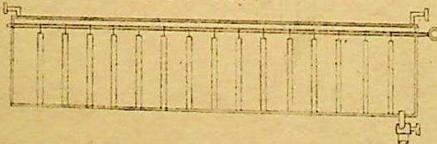
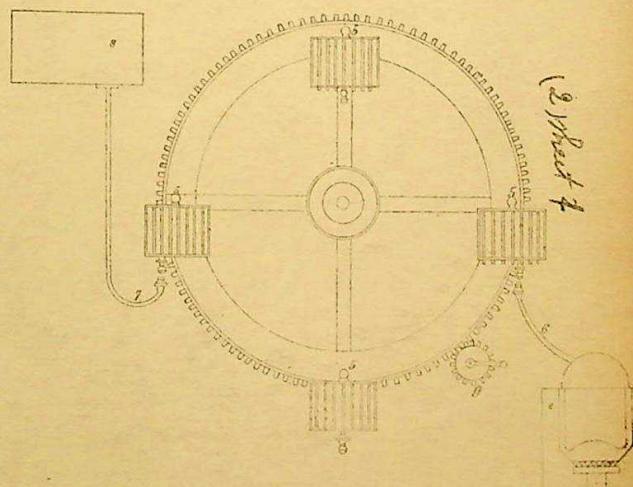


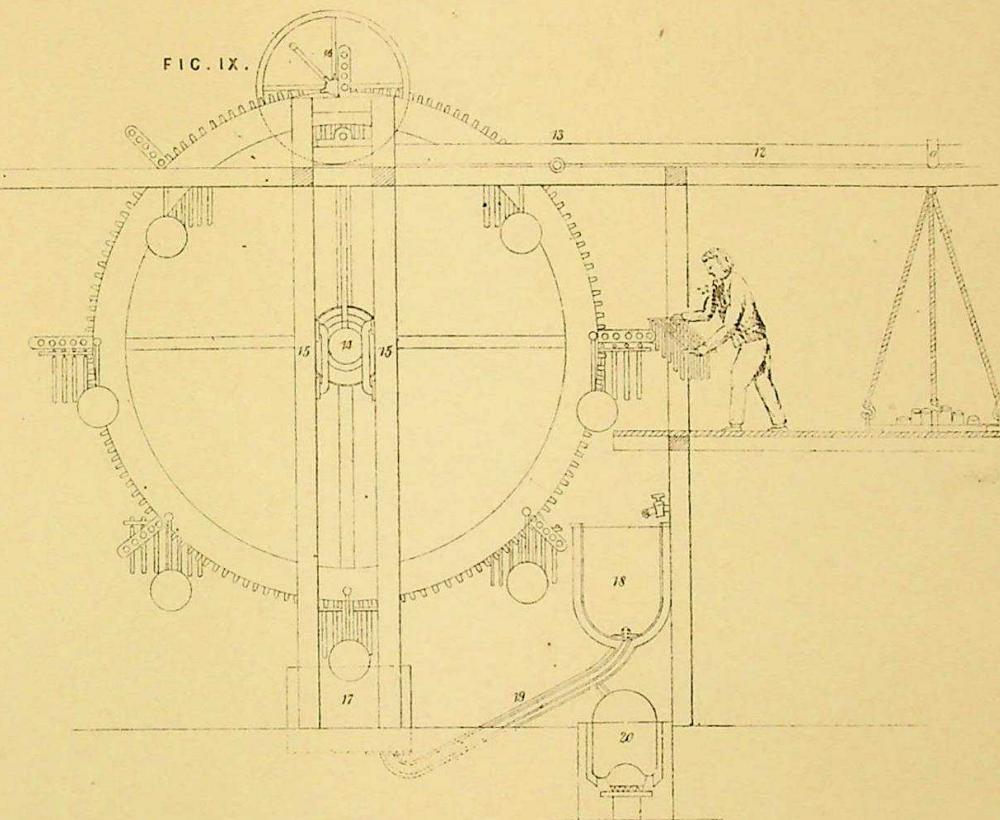
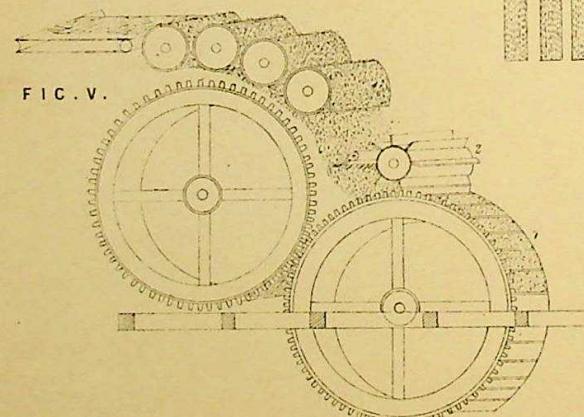
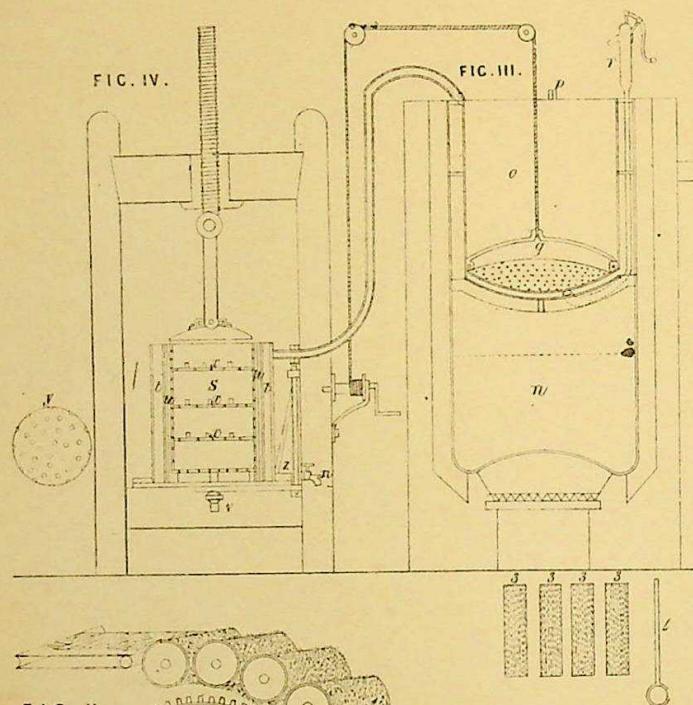
FIG. VI.



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Binn.





A.D. 1801 N° 2488.

Manufacture of Candles.

BINNS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, THOMAS BINNS, of Great Barlow Street, in the Parish of Saint Marylebone, in the County of Middlesex, Water-closet Maker, send greeting.

WHEREAS the King's most Excellent Majesty, by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Twenty-third day of April, in the forty-first year of His reign, did give and grant unto me, the said Thomas Binns, my executors, administrators, and assigns, His especial licence that I, the said Thomas Binns, my executors, administrators, and assigns, might make, use, exercise, and vend my Invention of "A NEW AND IMPROVED METHOD OF MANUFACTURING CANDLES OF WAX, SPERMACETI, TALLOW, OR ANY OTHER SOLID INFLAMMABLE SUBSTANCE, WHEREBY SUCH CANDLES WILL BE OF MUCH GREATER DURABILITY, AND WILL GIVE A MORE STEABY AND BRILLIANT FLAME," within that part of Great Britain called England, the Dominion of Wales, and Town of Berwick-upon-Tweed, for and during the term of years therein mentioned; in which said Letters Patent is contained a proviso, that if I, the said Thomas Binns, should not particularly describe and ascertain the nature of my Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be inrolled in His Majesty's High Court of Chancery within one calendar month next and immediately after the date of the said Letters Patent, that then the said Letters Patent, and all liberties and advantages whatsoever thereby granted, should utterly cease, determine, and become void, anything therein-before contained to the contrary thereof in anywise notwithstanding.

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standing, as in and by the said Letters Patent, relation being thereunto had, may more fully and at large appear.

NOW KNOW YE, that I, the said Thomas Binns, in compliance with the said proviso, do hereby describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, in manner following, that is 5 to say:—

The apparatus by which I mean to perform and carry into effect my said Invention may be seen by the plan hereunto annexed, to which I refer, and which is more fully explained in the subsequent part of this Specification. A principle object of my Invention is to destroy the bad effects which the naked 10 fire causes in melting down and manufacturing animal fat, and other substances of which candles are made, by employing steam to produce a sufficient degree of heat to melt, render down, or manufacture the aforesaid substances, and thereby prevent the naked fire from discoloring, wasting, or otherwise injuring the bodies or substances to be melted, rendered down, or manufactured into 15 candles. My Invention will also diminish manual labor in the following ways:—First, by rendering the constant attendance of a man or men at the boiler unnecessary, since the heat produced by steam is of that particular nature, that substances, which when melting in the common way must inevitably burn to the boiler unless constantly stirred, will, in this improved 20 manner of producing the heat required, never stick or burn to the boiler in the smallest degree. Secondly, by the aid of pumps, kept warm by the means of steam, constructed as in the plan, a considerable saving of manual labor will take place in using these pumps for the purpose of taking such solid inflammable substances when in a liquid state from one vessel to another, which in 25 the common way is attended with much labor and trouble as well as waste. Another advantage is also obtained by means of these pumps, as thereby the liquid may be easily raised to any given height, from whence it may fall by natural gravity from vessel to vessel, until the whole process is compleated. Thirdly, by having a false bottom or strainer to lift the greaves from the 30 bottom of the melting copper, whereby they may be taken away with greater facility, and in a fitter state for pressing, than if no such strainer was used. The great consumption of fuel in the melting or manufacturing of various solid substances by the common method of applying fire only for such purposes, will be considerably lessened by this Invention, as, when the water boiler in the 35 plan is once in a state of ebullition, a very small quantity of fire will keep it in that state. Manual labor and fuel will be also saved in cutting the fat or other solid inflammable substance according to the method shewn in the plan, By the present method it will be more completely divided, and easily reduced in

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a state for the melting copper, and will be more quickly melted or rendered down. A considerable saving will also be made by applying steam round the press, and placing hollow press plates between the bodies or substances to be pressed; the liquid being thus more easily drawn from the centre of the 5 bodies pressed, and the greaves or dregs left in a more dry state than by the common way, and more fat extracted therefrom.

By preparing the cotton wool for the wicks of the candles according to my Invention there will be a great saving in the quantity of cotton wool, the wicks upon the improved plan requiring about two-thirds less cotton wool 10 than the common method; and also a considerable saving in labor, as the wicks are made from cotton wool only as it comes from the carding machine, without the necessity of winding or spinning. Besides this advantage, there are many others resulting from the cotton being prepared in this improved manner, for the wick, being tubulous or hollow, on account of its being rolled 15 round wire, burns with a more steady and brilliant flame, and requires less snuffing, and, from the small quantity of cotton to be used, the candle will burn for a greater length of time, producing at the same time a better light. The candle is also not so liable to gutter as when it is snuffed close to the tallow, which inevitably causes a common candle to gutter. The tube, which 20 is never filled up entirely in the burning, proves a receptacle for the superfluous fluid, occasioned by the too near approach of the flame to the tallow, and thus preventing it from overflowing.

The great advantage of making mould candles, by applying steam and cold water in succession round the outside of the moulds, makes them more expeditiously and beautifully than heretofore, as there is no necessity for waiting until they are cooled by the air, and when made will have a better gloss than common candles. These moulds are particularly adapted to the making of wax candles, which have never before been made perfectly in moulds, on account of the difficulty of keeping the mould warm while the wax was poured in, and 30 from the impracticability of drawing them out when made, which is entirely remedied by introducing steam and water in succession round the outsides of the moulds. There will also be a very great saving in manual labor by my Invention for dipping candles, as it will make them more expeditiously, and at the same time in a more true and perfect form, than can possibly be effected 35 by hand, as in the common way, and will be a great preventive to the cracking of the candles.

An explanation of the apparatus, described in the plan hereunto annexed, by which apparatus my Invention may be performed or carried into effect.

Fig. 1 is a section of a machine for cutting fat. *a* is the circular trough,

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placed in a horizontal position, which moves upon a centre at *b*, *b*; this horizontal trough is moved by an endless screw upon the axis *c*, on which the fly wheel *d* moves, which endless screw works in the spur wheel *f*, which gives motion to the horizontal trough at *g*; *h* is the cutting knife, which is fixed on the lever *i*; *k* is a communicating rod, which connects the lever to a crank on the axis of the fly wheel at *c*, which gives motion to the knife by the revolution of the crank; this is performed by a handle in the common way. The horizontal trough is made to advance any given distance by the endless screw at *c*, and is so contrived as only to move when the knife is elevated by the extreme of the crank, and is intirely clear of the fat, so that when the knife is brought down again by the crank the situation of the trough is changed, and the fat cut in a different place every revolution of the crank.

Fig. II. is a platform of the cutting machine, Fig. 1, which exhibits more clearly the frame or lever wherein the cutting knives are fixed, marked *l*, *l*, *m*, *m*, *m*, are the knives so fixed, screwed upon the frame *l*. The knives working parralel with the centre, and the trough being moved in a circular direction, causes the knives to cut the fat into very small pieces, similar in shape to a lozenge or diamond, thereby dividing and separating it completely.

Fig. III. is a melting copper, on an improved principle, which is intended to melt either by confined steam or boiling water. *n* is a copper or boiler to contain water to any given height, into which another copper is immersed (marked *o*); this last-mentioned copper is surrounded either with steam or water. These coppers are to be fastened together at the top either by solder or screws, so as to be steam-tight, on some part of the top of which is a steam valve, marked *p*. This valve is weighted or loaded according to the heat required. In the copper *o* is a false bottom or strainer (marked *q*), full of fine holes, to divide or filter the liquid from those parts of the fat which do not melt, but more particularly intended to separate the greaves from the tallow, and to rise up the greaves to the surface of the copper by a cord. When the same are required to be taken away from the fat or liquid, the cord upon such occasions is hooked or fastened to the bow or handle of the false bottom or strainer and disengaged at pleasure. The handle of the false bottom or strainer is made to rise and fall occasionally, so as to be entirely out of the way when there is any occasion to stir the fat. The liquid fat when separated from the greaves by the false bottom is drawn off from the copper by the pump *r*.

Fig. IV. is a hot press for pressing the greaves. *S* is a cylindrical or square vessel, which is surrounded by steam, as at *t*, *t*, which steam is supplied from

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a copper by a communicating tube into the steam vessel surrounding the vessel S, in which the greaves are contained. The cylindrical or square vessel S is perforated with holes, which suffer the fat that is pressed out from the greaves to sink into a space between the steam vessel, and the vessel 5 containing the greaves, which space is marked u, u. The fat or liquid so pressed out is drawn from such space by the cock v. w is a cock to let off the condensed steam. For the more completely pressing the fat out of the greaves, it is proposed to put the greaves into hair bags and place hollow boards or press plates with holes or channels in them to let the fat run off 10 between the hair bags, thereby greatly facilitating the operation, which press plates are marked x, x, x. y is one of those plates out of the press; z is a small crane, fixed to the press, for the purpose of taking or swinging out the cylindrical or square vessel from under the screw, the better to enable a person to put the greaves, or other material to be pressed, into the cylindrical 15 or square vessel, and to place the same in like manner under the screw, and again remove it after being pressed. This press will also be found particularly useful in the hot-pressing of paper, linen, woollen, and other cloths, and all other materials for which hot presses are used; for the steam being contained in an outer vessel, close to the cylinder or square vessel containing the things 20 to be pressed, rarifies the air within the press, and causes a considerably greater degree of heat than in the usual manner; and by keeping up the strength of the steam, this heat may be kept up or even increased during the operation, and by the addition of the hollow press plates between the several articles pressed, this heat is extended to every part of them. The steam is 25 confined in the outer vessel, which is steam-tight, and consequently no part of it comes to the articles or things in the press but only the heat.

Fig. V. is a carding machine for preparing the cotton wool for the wicks of candles. The cotton is taken from the carding cylinder in the usual way and is led on to a drum wheel No. 1. This drum wheel is marked in divisions 30 or spaces for cutting the cotton of certain widths by a circular cutter at 2. The cotton may be also cut by shears or any other cutting instrument on a platform marked or divided into given breadths. 3, 3, 3, 3, are the cottons, cut into a proper length and breadth for rolling on the wire No. 4; these pieces of cotton are rolled on the wire, and may then be either dipped or 35 introduced into a mould and made into candles, as in the common way.

Fig. VI. is a view of the machine for making mould candles, more particularly calculated for wax and spermaceti candles. The moulds are immersed in a steam-tight vessel, fixed to a wheel, as at Nos. 5, 5, 5, 5. When steam is wanted to make the moulds warm, it is done by a communicating steam pipe,

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as at No. 6; and when the wax, tallow, or other material of which candles are made, is poured into the mould, and it is requisite to cool it expeditiously, it is done by a communicating pipe, as at No. 7, which lets in cold water from a cistern, No. 8. The steam moulds are fastened on a vertical wheel, which is moved round at pleasure by a pinion, No. 9.

Fig. VII. is a section of a steam-tight vessel containing the moulds, which more clearly exhibits the manner in which the steam or cold water is applied.

Fig. VIII. is a section of one of the moulds contained in the steam-tight vessel, on a larger scale, to shew the manner by which the candle is taken out of the mould, by a foot piece No. 10, which screws on the mould; this section 10 likewise exhibits the tubulous wick on the wire at No. 11.

Fig. IX. is the side view of a dipping machine, which consists of a vertical spur wheel, on which is fixed a quantity of frames supporting the wicks to be dipped; these frames are hung upon pivots, and are kept perpendicular by pendulums. The vertical spur wheel on which the frames are fixed is hung upon a scale beam, as at No. 12, and works upon a centre or pivot, No. 13; at the one end of the scale beam are the weights, and at the other a communicating rod, which comes down to the centre of the wheel at No. 14. No. 14 is a friction wheel, moving up and down between two guides at Nos. 15, 15. The machine is put in motion by a fixed pinion, No. 16. On the vertical wheel 20 are placed racks, perpendicularly over the frames, supporting the wicks to be dipped. When the machine is in motion, and one of the racks is brought to the fixed pinion, it causes the wheel to descend until the top of the rack passes under the pinion, and then the pinion causes the wheel to ascend; the pinion then works in the usual part of the spur wheel until it is again engaged in the 25 succeeding rack. At every depression of the vertical wheel of this machine the wicks are dipped in a dipping mould placed underneath. No. 17 is the dipping mould, which is supplied with liquid tallow, or any material of which the candles are to be made, from the reservoir, No. 18, by a communicating steam pipe, No. 19. No. 20 is a steam copper to supply the dipping mould, 30 steam pipe, and reservoir, with steam, thereby keeping the tallow or other material in a liquid state, and of a proper heat, which by this improved mode may be regulated by a thermometer.

Fig. X. is a section of the front view of the dipping machine, which exhibits several of its parts in a more perfect manner than the side view, 35 Fig. IX., before described. Nos. 21, 21, are the pendulums, fastened to the ends of the pivots of the frames on which the wicks hang, which pendulums always keep the candles in a vertical position. No. 22 is the dipping mould, containing the liquid tallow, or other material of which the candles are to be

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made, into which the wicks are dipped by the vertical wheel. No. 23 is an air ball, floating in the tallow or other material in the dipping mould, which is regulated by a thumb screw at the top, and by the air ball rising and falling in the liquid tallow or other material, opens and closes the valve at No. 24, for 5 the purpose of keeping the dipping mould properly supplied with tallow. Nos. 25, 25, are the two rods which communicate with the scale beam and the vertical spur wheel, for the purpose of raising and falling that wheel at pleasure, and thereby dipping the wicks. Nos. 26 and 26 are a sectional view of the guides and friction wheels, which more clearly shows how the 10 same work.

THOS (L.S.) BINNS.

AND BE IT REMEMBERED, that on the Twenty-third day of May, in the forty-first year of the reign of His Majesty King George the Third, the said Thomas Binns came before our said Lord the King in His Chancery, 15 and acknowledged the instrument aforesaid, and all and every thing therein contained and specified, in form above written. And also the instrument aforesaid was stamped according to the tenor of the several Statutes made in the sixth year of the reign of the late King and Queen William and Mary of England, and so forth, and in the seventeenth, twenty-third, and thirty-seventh 20 years of the reign of His present Majesty King George the Third.

Inrolled the Twenty-third day of May, in the year of our Lord One thousand eight hundred and one.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1856.

S. B. E. N.

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